Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-45	V
Collector-Emitter Voltage (Forward Blocking)	V_{CEO}	-40	V
Emitter-collector voltage (Reverse Blocking)	V_{ECO}	-3	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current (Note 5)	I_C	-1.5	A
Base Current	I_B	-500	mA
Peak Pulse Current	I_{CM}	-5	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

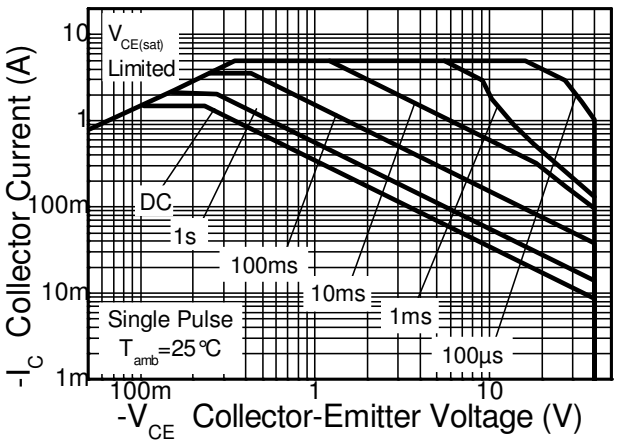
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	310	mW
	(Note 6)		350	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	403	°C/W
	(Note 6)		357	
Thermal Resistance, Junction to Leads	(Note 7)	$R_{\theta JL}$	350	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 8)

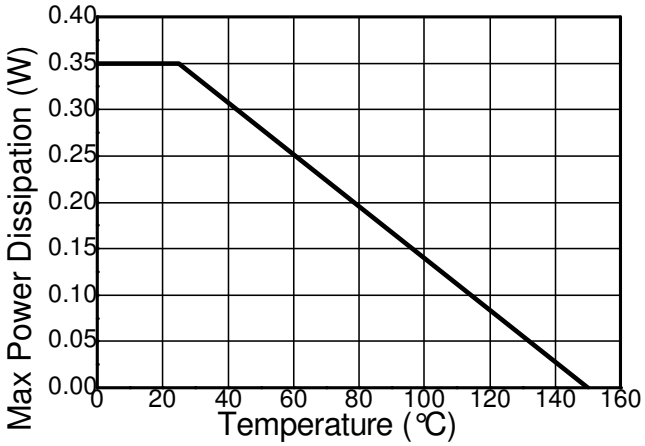
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as Note 5, except the device is mounted on 15 mm x 15mm 1oz copper.
7. Thermal resistance from junction to solder-point (at the end of the leads).
8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

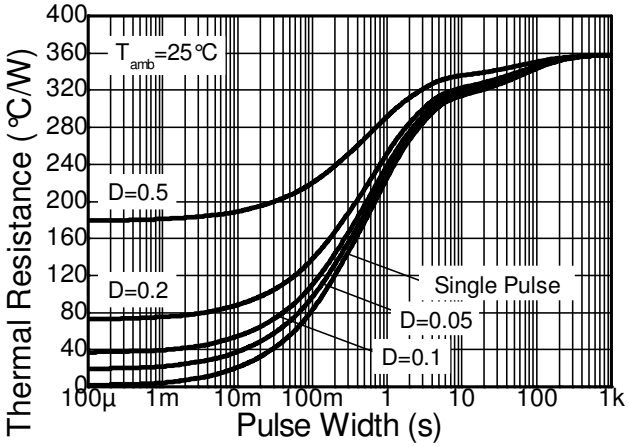
Thermal Characteristics and Derating Information



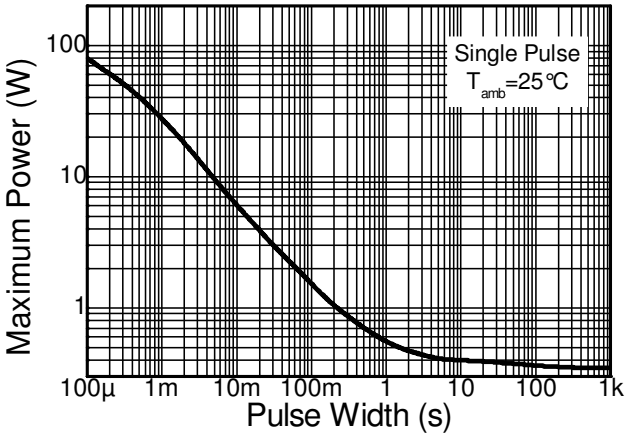
Safe Operating Area



Derating Curve



Transient Thermal Impedance



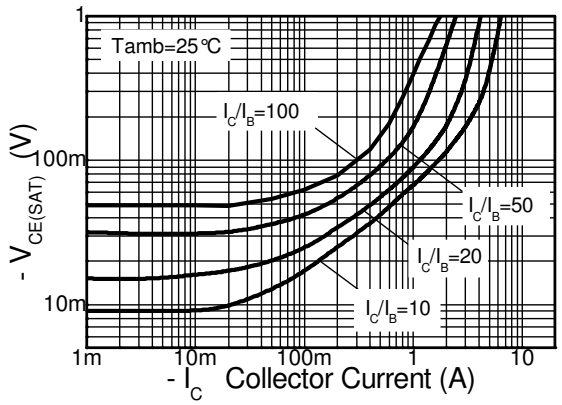
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

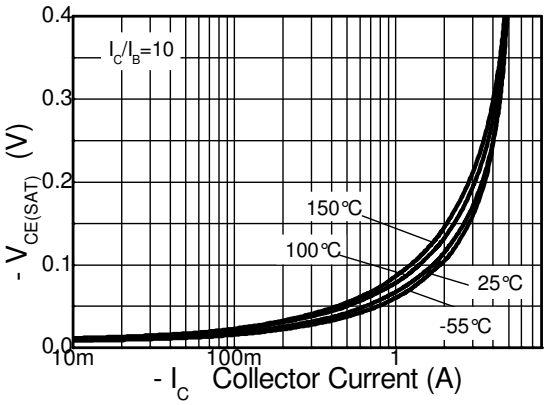
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-45	-75	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-40	-65	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.2	-	V	I_E = -100µA
Emitter-Base Breakdown Voltage	BV_{ECO}	-3	-8.7	-	V	I_E = -100µA
Collector-Base Cutoff Current	I_{CBO}	-	< -1	-50	nA	V_{CB} = -36V
		-	-	-20	µA	V_{CB} = -36V, T_{amb} = +100°C
Emitter-Base Cutoff Current	I_{EBO}	-	< -1	-50	nA	V_{EB} = -5.6V
Static Forward Current Transfer Ratio (Note 9)	h_{FE}	300	450	900	-	I_C = -10mA, V_{CE} = -2V
		120	200	-		I_C = -1.5A, V_{CE} = -2V
		15	40	-		I_C = -3A, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	-	-75	-95	mV	I_C = -0.5A, I_B = -20mA
		-	-200	-290		I_C = -1A, I_B = -20mA
		-	-95	-115		I_C = -1A, I_B = -100mA
		-	-160	-190		I_C = -1.5A, I_B = -75mA
		-	-245	-300		I_C = -3A, I_B = -300mA
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	-	-915	-1000	mV	I_C = -1.5A, I_B = -75mA
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(on)}$	-	-825	-900	mV	I_C = -1.5A, V_{CE} = -2V
Output Capacitance	C_{obo}	-	17.4	25	pF	V_{CB} = -10V, f = 1MHz
Transition Frequency	f_T	-	270	-	MHz	V_{CE} = -10V, I_C = -50mA, f = 50MHz
Delay Time	$t_{(d)}$	-	34	-	ns	V_{CC} = -15V, I_C = -750mA, I_{B1} = -I_{B2} = -15mA
Rise Time	$t_{(r)}$	-	41	-	ns	
Storage Time	$t_{(s)}$	-	266	-	ns	
Fall Time	$t_{(f)}$	-	53	-	ns	

Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300 µs. Duty cycle ≤ 2%.

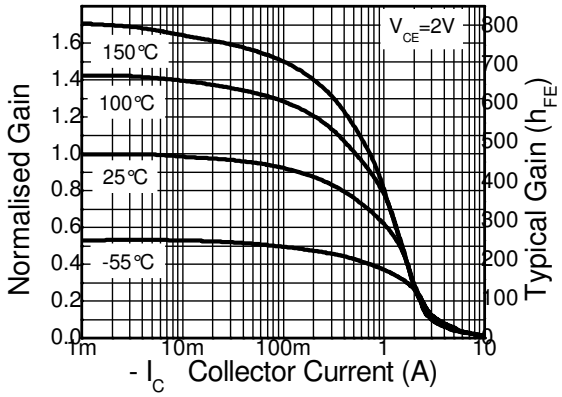
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



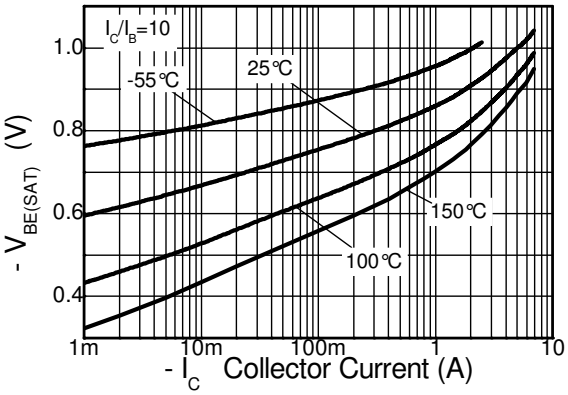
$V_{CE(SAT)}$ v I_C



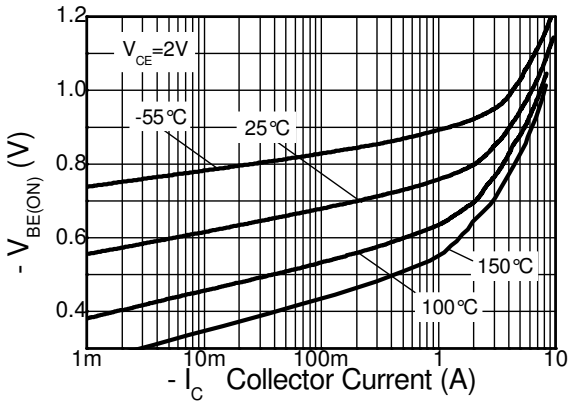
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



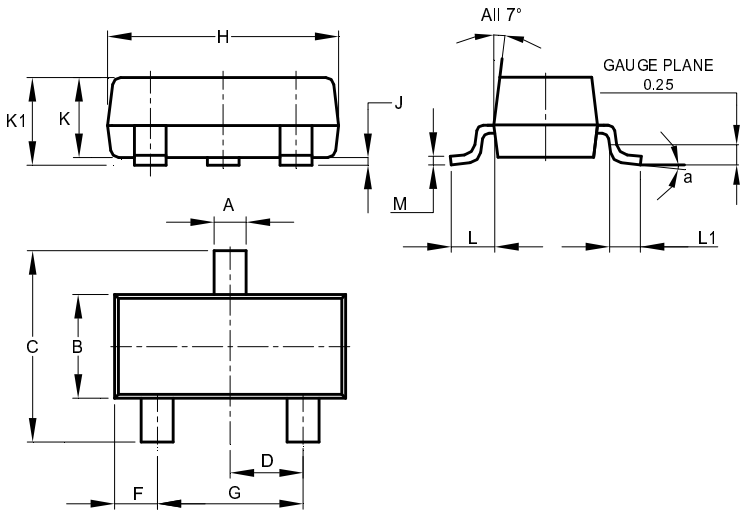
$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

Package Outline Dimensions

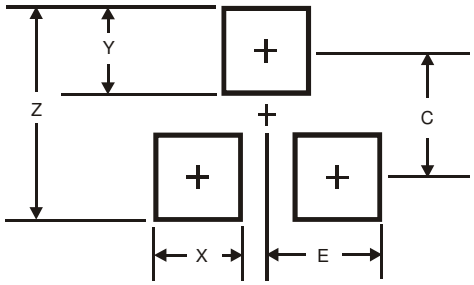
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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